

LISTING OF THE CLAIMS

The pending claims are as follows:

1. (Previously presented) Process for the decarbonation of gas flows, contaminated with CO₂, comprising placing in contact the gas flow to be purified, in an adsorption zone, with at least one adsorbent consisting essentially of a zeolite containing NaLSX type with an Si/Al ratio of 1 to 1.15, exchanged with sodium to a degree of greater than or equal to 98%, the degree of exchange being expressed as the ratio between the number of sodium ions and the number of aluminum atoms in a tetrahedral position, the remainder of the exchange capacity being occupied by potassium ions, agglomerated with a binder, the content of residual inert binder in the adsorbent being less than or equal to 20% by weight.
2. (Previously presented) Process according to Claim 1, wherein the content of residual inert binder in the agglomerated zeolite composition is not more than 5% by weight.
3. (Previously presented) Process according to Claim 1, wherein it is performed by pressure swing adsorption (PSA).
4. (Previously presented) Process according to Claim 1, wherein the zeolite X has an Si/Al ratio of 1.
5. (Previously presented) Process according to Claim 1, wherein adsorption pressures are between 1 and 10 bar and desorption pressures are between 0.1 and 2 bar.
6. (Previously presented) Process according to Claim 1, wherein it comprises carrying out a treatment cycle comprising:
 - a) passing the contaminated gas flow into an adsorption zone comprising an adsorbent bed, the adsorbent bed ensuring separation of the contaminant(s) by adsorption,

- b) desorbing the adsorbed CO₂ by establishing a pressure gradient and gradually lowering the pressure in the adsorption zone to recover the CO₂ at the adsorption zone inlet;
- c) raising the pressure of the adsorption zone by introducing a stream of pure gas via the adsorption zone outlet.

7. (Previously presented) Process according to Claim 6, in which the adsorbent is regenerated at a temperature between 100 and 120°C.

8. (Previously presented) Process for purifying air contaminated with CO₂ and H₂O, comprising gas flow to be purified is placed in contact, in an adsorption zone, with at least one drying agent and at least with an adsorbent consisting generally of zeolite containing NaLSX type with an Si/Al ratio of 1 to 1.15, exchanged with sodium to a degree of greater than or equal to 98%, the degree of exchange being expressed as the ratio between the number of sodium ions and the number of aluminum atoms in a tetrahedral position, the remainder of the exchange capacity being occupied by potassium ions, agglomerated with a binder, the content of residual inert binder in the adsorbent being less than or equal to 20% by weight.

9. (Previously presented) Process according to Claim 8, wherein it comprises carrying out a treatment cycle comprising:

- a) passing contaminated gas flow into an adsorption zone comprising a drying-agent bed and an adsorbent bed, with at least one adsorbent consisting essentially of a zeolite containing NaLSX type with an Si/Al ratio of 1 to 1.15, exchanged with sodium to a degree of greater than or equal to 98%, the degree of exchange being expressed as the ratio between the number of sodium ions and the number of aluminum atoms in a tetrahedral position, the remainder of the exchange capacity being occupied by potassium ions, agglomerated with a binder, the content of residual inert binder in the adsorbent being less than or equal to 20% by weight,
- b) desorbing the adsorbed CO₂ by establishing a pressure gradient and gradually lowering the pressure in the adsorption zone to recover the CO₂ at the adsorption zone inlet;

c) raising the pressure of the absorption zone by introducing a stream of pure gas via the adsorption zone outlet.

10. (Previously presented) Process according to Claim 1, wherein the gas is air.

11. (Previously presented) Process according to Claim 3, wherein the process is performed by pressure temperature swing adsorption (PTSA).

12. (Previously presented) Process according to Claim 8, wherein the drying-agent contains alumina.

13. (Canceled)